

## KBS-321 Container and Kubernetes networking deep dive - basic

**Course Length:** 1 days

### Course Description:

Containerized applications are accessed over the network, but how are they connected to the network while staying isolated from each other?

Participants of this training will learn about the different types of networking resources that facilitates the connectivity for containers, the Container Network Interface (CNI) as well as CNI plugins.

Besides in-depth theoretical coverage students also do hands-on exercises in their own Kubernetes lab system.

**Structure:** 50% theory 50% hands on lab exercises

**Target audience:** System administrators, developers and Devops who want to understand and use Kubernetes network features.

**Prerequisites:** Linux container (e.g. Docker) and Kubernetes administration skills, for instance by participating on our Docker and Kubernetes administration courses.

### Detailed Course Outline:

#### Module 1: Network connectivity for containers

- Isolating network resources
- Connecting network namespaces – veth pairs
- Connecting network namespaces – bridges
- Connecting network namespaces – routing
- Connecting network namespaces – macvlan
- Connecting network namespaces – ipvlan
- Docker networking
- Docker networking - addresses
- Docker networking - custom bridge
- Docker networking - host network
- Docker networking - shared network NS
- Docker networking – publishing ports
- Lab 1

#### Module 2: CNI - Container network interface

- CNI Specification - Concepts
- CNI – Network configuration format
- CNI – Execution protocol
- CNI – Operations
- CNI – Plugin delegation
- CNI – Conventions
- Lab 2

#### Module 3: CNI plugins

- CNI – Reference Plugins
- Third Party Plugins – Calico
- Third Party Plugins – Multus CNI
- Third Party Plugins – Whereabouts
- Lab 3